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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,142	03/25/2004	Frank P. Uckert	PE0667USDIVI	7398

23906 7590 03/24/2006

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EXAMINER

CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,142

Applicant(s)

UCKERT ET AL.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9,11,14-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,11,14-17 and 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3,9,12/04, 4/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Application is a Division of US Application Number 10/137,898 filed May 2, 2002, which claims the benefit of 60/288,314 filed May 3, 2001.

2. This Office Action is in response to the Second Preliminary Amendment filed September 16, 2004. Claims 8, 10, 12-13, and 18 were canceled and Claim 21 has been added. Claims 1-7, 9, 11, 14-17, and 19-21 are now pending, wherein claims **1-7**, **9**, and **11** are drawn to a copolymer and claims **14-17** and **19-21** are drawn to an electronic device.

Claim Objections

3. Claims 1-7, 9, 11, 14-17, and 19-21 are objected to because of the following informalities:

(a) claim 1, line 15, "or adjacent R groups together can form a 5- or 6-membered cycloalkyl, aryl, or heteroaryl ring, such that:" is suggested to be changed to --wherein R^2 is selected from hydrogen, alkyl, aryl, heteroalkyl and heteroaryl; δ is 0 or an integer from 1 to 12 and adjacent R groups together can form a 5- or 6-membered cycloalkyl, aryl, or heteroaryl ring ; --;

(b) claim 1, lines 32-37, "; in Formula XII: R^2 is selected from hydrogen, alkyl, aryl, heteroalkyl and heteroaryl; δ is 0 or an integer from 1 to 12" is suggested to be

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deleted;

(c) claim 7, structures of Formulae IV(a) through IV(h) are suggested to be incorporated to the claim. "Where possible, claims are to be complete in themselves. Incorporation by reference to a specific figure or table is permitted only in exceptional circumstances where there is no practical way to define the invention in words and where it is more concise to incorporate by reference than duplicating a drawing or table into the claim. Incorporation by reference is a necessity doctrine, not for applicant's convenience. *Ex parte Fressola*, 27, USPQ 2d 1608, 1609(Bd.Pat. App. & Inter. 1993);

(d) claim 21, line 16, "or adjacent R groups together can form a 5- or 6-membered cycloalkyl, aryl, or heteroaryl ring, such that:" is suggested to be changed to --wherein R^2 is selected from hydrogen, alkyl, aryl, heteroalkyl and heteroaryl; δ is 0 or an integer from 1 to 12 and adjacent R groups together can form a 5- or 6-membered cycloalkyl, aryl, or heteroaryl ring ; --; and

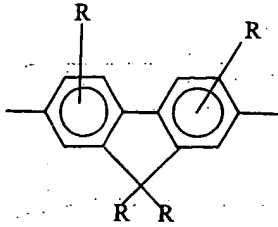
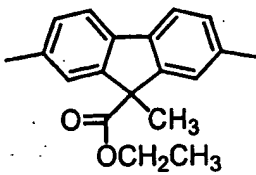
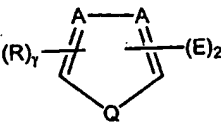
(e) claim 21, lines 33-36, "; in Formula XII: R^2 is selected from hydrogen, alkyl, aryl, heteroalkyl and heteroaryl; δ is 0 or an integer from 1 to 12" is suggested to be deleted.

Appropriate correction is required.

Claim Analysis

4. Summary of Claim 1:

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A copolymer comprising	
1	at least one first monomeric unit:
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>I</p> </div> <div style="text-align: center;">  <p>I(a)</p> </div> </div>
2	at least one second monomeric unit selected from 5-membered-ring heteroatomic group:
	 <p>IV</p>
	<ul style="list-style-type: none"> • R is selected from H, alkyl, aryl, heteroalkyl, heteroaryl, F, CN, -OR¹, -COOR¹, -C_ψH_θF_λ, -OC_ψH_θF_λ, -SR¹, -N(R¹)₂, -P(R¹)₂, -SOR¹, -SO₂R¹, -NO₂, and R²-(C=O)-CH [(CH₂)_δ](C=O)-R² (δ = 0-12) • adjacent R groups together can form a 5- or 6-membered cycloalkyl, aryl, or heteroaryl ring
	in Formula IV
	<ul style="list-style-type: none"> • E = a single bond or a linking group selected from arylene and heteroarylene • A = C or N and γ = 0-2 such that <ul style="list-style-type: none"> when both A = N, γ = 0 when one of A = N and one of A = C, γ = 1; when both A = C, γ = 2 • Q = O, S, SO₂ or NR¹ • when R = H, alkyl, F, CN, -OR¹, -COOR¹, the copolymer further comprises end-capping ggroups that are aromatic

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

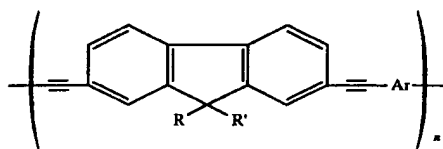
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7, 9, 11, 14-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Inbasekaran et al. (US 5,777,070).

Inbasekaran et al. disclose a copolymer of 9,9-di-n-octylfluorene and bithiophene (Example 4). Inbasekaran et al. further disclose that the copolymer is used in electroluminescent (EL) devices (from line 13 of col. 6 to line 61 of col. 8). Thus, the present claims are anticipated by the disclosure of Inbasekaran et al.

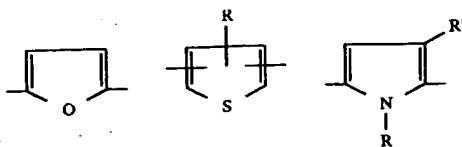
7. Claims 1-7, 9, 11, 14-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US 5,876,864).

Kim et al. disclose a fluorene based alternating polymer to be used in photoluminescence and electroluminescence device:



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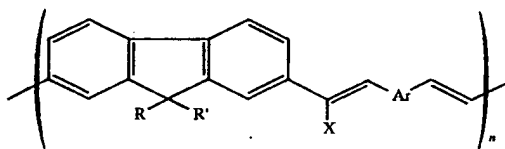
wherein Ar can be



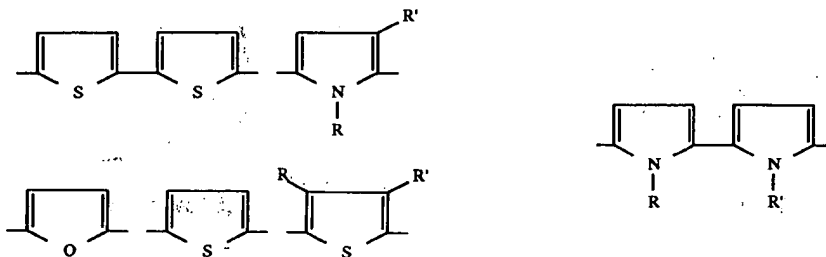
(abstract; col. 5, line 25-30; col. 16, lines 1-45; claim 1). Thus, the present claims are anticipated by the disclosure of Kim et al.

8. Claims 1-2, 4-7, 9, 11, 14-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US 5,807,974).

Kim et al. disclose a fluorene based alternating copolymer to be used as light emitting materials for an electroluminescent device:



wherein Ar can be



(abstract; col. 6, lines 5-25; Table 1; claim 1). Thus, the present claims are anticipated by the disclosure of Kim et al.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

L. S. Choi

LING-SUI CHOI
PRIMARY EXAMINER

March 15, 2005